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27. FIRST RECORD OF *COCCINELLIMERMIS* RUBTZOV (MERMITHIDAE) FROM INDIA

Though many species of Coccinellids are parasitized by nematodes (Richerson 1970), *Coccinella septempunctata* L., an aphidophagous species, has been found to harbour *Paratylenchus coccinellae* (Iperti and Van Waerebeke 1968), *Mermis coccinellae* Dies and *M. nigrescens* Duj (Richerson 1970). Information on the parasites of *C. septempunctata* is rather scant in India.

During the course of collection and rearing of *C. septempunctata* in May to August 1981, the lady bird beetles were noticed to be parasitised by nematodes. Nine nematodes emerged from the abdominal region of *C. septempunctata* as has been shown to occur in the case of the larva of *Perilitus coccinellae* Schrank (Hodek 1973). Four of them emerged through the membranes between 2nd and 3rd, three between 5th and 6th and two between 6th and 7th abdominal tergites. The time taken by the worms to come out was between 12 and 29 minutes. The length and breadth of the nematodes ranged from 9.2 to 11.1 cm and 0.62 to 0.92 cm respectively, the average length and breadth being 10.02 ± 0.57 cm and 0.71 ± 0.11 cm respectively. The weight of the worms ranges from 3.8 to 8.6 mg, the

average weight being 6.4 ± 1.71 mg.

The nematode worms were identified by Prof. D. J. Hunt of Commonwealth Institute of Parasitology as juveniles of *Coccinellimermis* Rubtzov 1978. In a personal communication dated March 31, 1982, he wrote as follows: "The nematodes are juvenile mermithids of the genus *Coccinellimermis* Rubtzov. Adult stages are unknown. However, if you find further specimens emerging from Coccinellids, they can be placed in a tube containing damp sand and left for several weeks to enable the nematodes to moult to the adult stage before preservation. *Coccinellimermis* belongs to the Mermithidae."

Out of 634 beetles collected during the months of May to August, 1981 only 10 showed nematode infection, i.e., 1.57%. Prior to the escape of the worms the lady bird beetles show hyperactivity for about 30 to 50 minutes.

ACKNOWLEDGEMENTS

Thanks are due to Prof. K. C. Pant, Director of C.I.E. forwarding the material to Dr. D. J. Hunt of C.I.P. for identification. I am grateful to Dr. Hunt for kindly identifying the material and for his suggestions.

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28. FIRST RECORDS OF PREDATORS OF COTTON PESTS IN THE PUNJAB

During surveys of the cotton crop from 1980-82 in the main cotton belt of the state (Ferozepur, Faridkot and Bhatinda districts) and in Ludhiana, adults of a number of predators were observed feeding on the insect pests of cotton for the first time. *Paedrus fuscipes* Curtis (Staphylinidae; Coleoptera), *Geocoris ochropterus* Slater (Lygaeidae; Hemiptera), *Coranus aegypticus* Fabricius (Reduviidae; Hemiptera), *Coranus* sp., *Zelus* sp. (Reduviidae; Hemiptera) and *Cerceris* sp. (Sphecidae; Hymenoptera) were feeding on the nymphs of cotton jassid, *Amrasca biguttula* *biguttula* (Ishida). All of these except *P. fuscipes* sucked the body fluid of the pest. Out of these *G. ochropterus*, *Coranus* spp. and *Zelus* sp. predated upon the young larvae of pink bollworm, *Pectinophora gossypiella* (Saunders), *Earias insulana* Boisduval and *E. vittella* Fabricius larvae. *Micraspis cardoni* (Weise) mainly predated upon the *Aphis gossypii* Glover. High population of *P. fuscipes*

is usually found in Egyptian clover, winter and fodder maize crops from where it migrates to cotton during June. Population of the remaining predators appear on the crop mainly during August and September which is the peak period of boll formation and bollworm attack. However, their population at farmer's fields remained quite low perhaps because of insecticidal applications which needs further investigations. *P. fuscipes* was earlier reported from India attacking rice leaf hoppers in Madhya Pradesh (Upadhyay and Diwaker 1983, Shukla *et al.* 1983).

ACKNOWLEDGEMENTS

We are grateful to Drs R. Madge, H. R. Wilson, M. S. K. Ghauri, B. R. Subba Rao and T. G. Vazirani of the Commonwealth Institute of Entomology, London for identification of the various insects reported in this article.

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